

M9000-158 Tandem Mounting Kit

Installation Instructions

M9000-158

Part No. 34-1382-6, Rev. D
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Installation

The M9000-158 Tandem Mounting Kit is intended for tandem mounting two of the same Johnson Controls® electric actuators of any of the following series:

- M9116-GGx or HGx
- M9124-AGx, GGx, or HGx
- M9132-AGx or GGx
- M9220-BGx, GGx, or HGx
- M9335-Axx or HGx

Use two electric actuators from the same torque and model group for tandem operation. Do not mix electric actuator models or torque ratings. The M9000-158 is not intended for remote mount applications or for tandem operation of Johnson Controls M9104, M9106, M9108, M9208, M9308, M9310, or M9320 Series Electric Actuators.

The M9000-158 is mounted on the inside or outside of a duct, damper frame, or air handling unit. When mounted with the M9000-158, the M9116, M9124, M9132, M9220, or M9335 Series Electric Actuators are directly coupled to a damper blade pin extension or a jackshaft.

The M9000-158 can be used in valve applications only if a flat mounting surface is available.

Special Tools Needed

- drill with No. 15 (4.57 mm) or 3/16 in. drill bit
- 1/4 in. (7 mm) flat-blade screwdriver or 5/16 in. (8 mm) hex nut driver

Prior to installation, determine the following:

- mounting position of the brackets in relation to the mounting position of the electric actuators
- operation of the damper (either normally open or normally closed)
- direction of rotation for the damper
- direction of action for the electric actuators (either direct or reverse acting)
- direction of spring return for the M9220 Series Electric Actuators (either clockwise or counterclockwise)

Refer to the following documentation for more information on configuring and installing the applicable electric actuators:

- *M9108, M9116, M9124, and M9132 Series Electric Non-Spring Return Actuators Installation Instructions (Part No. 34-636-399)*
- *M9220-AGx-3 Floating Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1689)*
- *M9220-Bxx-3 On/Off Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1239)*
- *M9220-GGx-3 Proportional Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1697)*
- *M9220-HGx-3 Proportional Electric Spring Return Actuators Installation Instructions (Part No. 34-636-1700)*
- *M9320 and M9335 Series Electric Non-Spring Return Actuators Installation Instructions (Part No. 34-636-2502)*

Mounting

Figure 1: Components of the M9000-158 Tandem Mounting Kit (See Table 1)

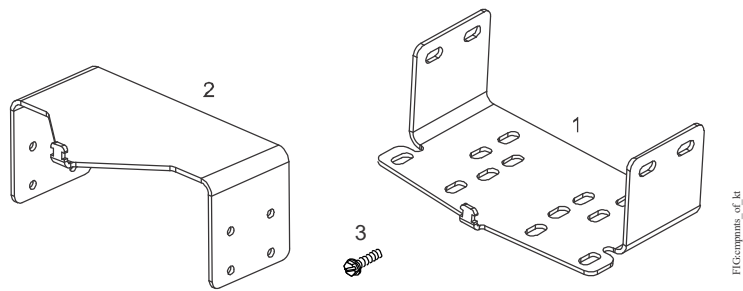
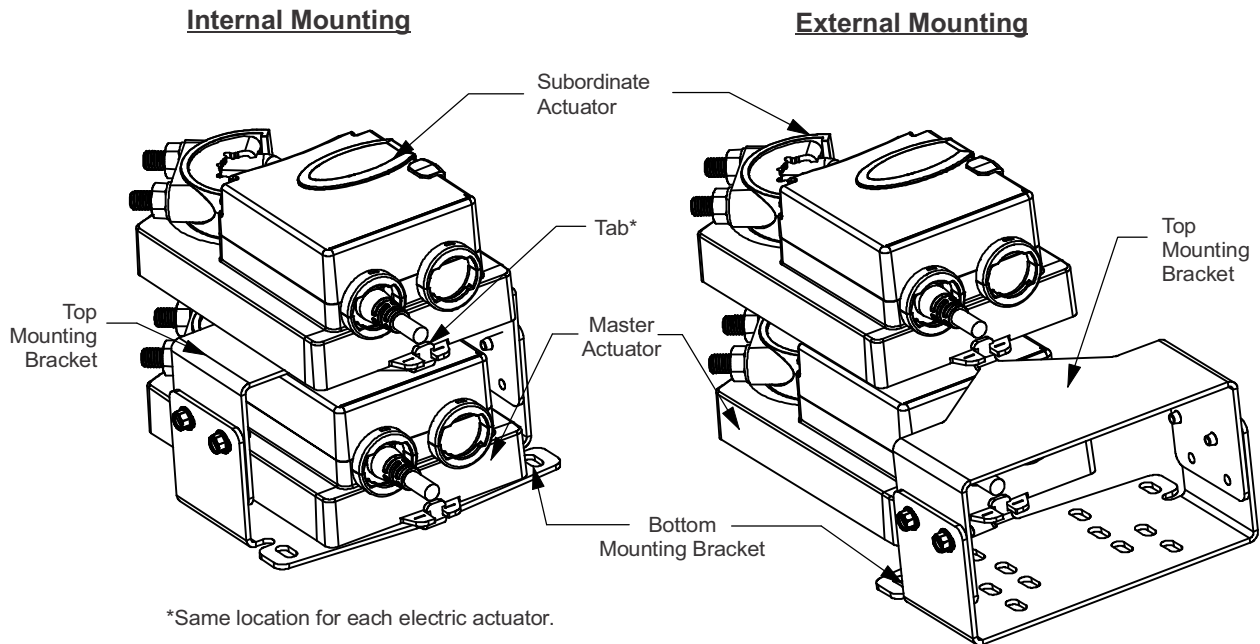


Table 1: Components of the M9000-158 Tandem Mounting Kit

Item	Quantity	Description
1	1	Bottom mounting bracket
2	1	Top mounting bracket
3	6	No. 12-24 x 1/2 in. (13 mm) self-tapping, hex washer-head screws

The mounting method chosen depends on the amount of space available for the tandem configuration. The two mounting configurations for the M9000-158 Tandem Mounting Kit are internal or external to the electric actuators as illustrated in Figure 2.

Figure 2: Tandem Mounting Configurations

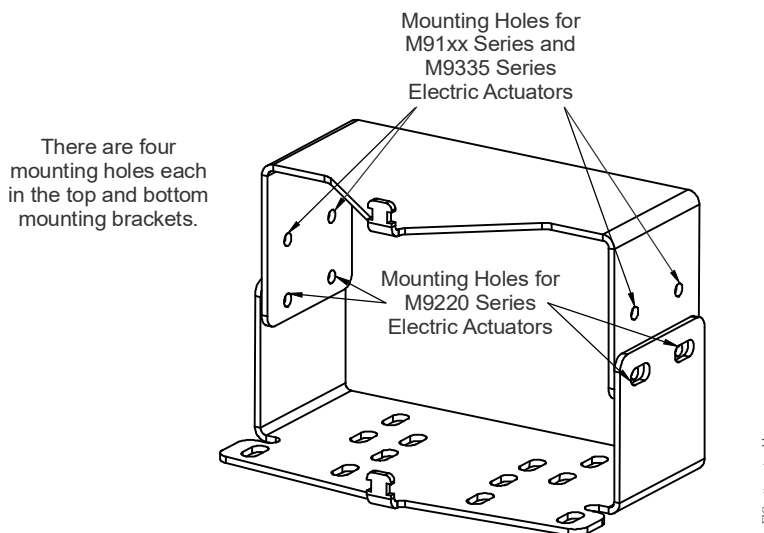


Internal Mounting

To install the M9000-158 Tandem Mounting Kit internal to the electric actuators, refer to the *Internal Mounting* diagram in Figure 2 and proceed as follows:

1. Position the bottom mounting bracket in the desired location on the mounting surface.
2. Mark the hole locations for the bottom mounting bracket on the mounting surface using a center punch, and drill two 0.18 in. (4.6 mm) holes.
3. Secure the bottom mounting bracket to the mounting surface with two No. 12-24 self-tapping screws.
4. Position the master actuator onto the bottom mounting bracket and the valve or damper shaft, making sure that the tab fits midpoint into the slot at the bottom of the master actuator as illustrated in Figure 2.
5. Refer to the appropriate electric actuator documentation and complete the wiring for the master actuator before proceeding further.
6. Select the appropriate mounting holes for the electric actuator models used (illustrated in Figure 3), position the top mounting bracket over the bottom mounting bracket, and secure the two mounting brackets with four No. 12-24 self-tapping screws.

Figure 3: Location of the Electric Actuator Mounting Holes



7. Position the subordinate actuator onto the valve or damper shaft and over the top mounting bracket, making sure that the tab fits midpoint into the slot at the bottom of the subordinate actuator as illustrated in Figure 2.

Note: If the shaft exhibits side play once the electric actuators are assembled in tandem, loosen the screws in the mounting holes illustrated in Figure 3. Adjust the top mounting bracket in the direction of the shaft to secure it, while ensuring that the tab remains midpoint into the slot at the bottom of the subordinate actuator.

External Mounting

To install the M9000-158 Tandem Mounting Kit external to the electric actuators, refer to the *External Mounting* diagram in Figure 2 and proceed as follows:

1. Assemble the top and bottom mounting brackets as illustrated in Figure 3, selecting the correct holes for the electric actuators used.
2. Position the tandem mounting bracket assembly onto the mounting surface and mark the hole locations for the assembly using a center punch.
3. Drill two 0.18 in. (4.6 mm) holes and secure the tandem mounting bracket assembly with two No. 12-24 self-tapping screws.

4. Position the master actuator onto the valve or damper shaft, making sure that the tab on the bottom mounting bracket fits midpoint into the slot at the bottom of the master actuator as illustrated in Figure 2.
5. Refer to the appropriate electric actuator documentation and complete the wiring for the master actuator before proceeding further.
6. Position the subordinate actuator onto the valve or damper shaft, making sure that the tab on the top mounting bracket fits midpoint into the slot at the bottom of the subordinate actuator as illustrated in Figure 2.

Note: If the shaft exhibits side play once the electric actuators are assembled in tandem, loosen the screws in the mounting holes illustrated in Figure 3. Adjust the top mounting bracket in the direction of the shaft to secure it, while ensuring that the tab remains midpoint into the slot at the bottom of the subordinate actuator.

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